

# Water Softeners

## 2002 Recycled Water Task Force

### Regulation & Permitting Workgroup

Norris Brandt, PE  
Irvine Ranch Water District

1

## Converging Challenges

- Hard potable water
  - Calcium/magnesium salts
  - Coastal areas
  - Saline imported water (Colorado River)
  - Saline/hard groundwater
- High salinity wastewater recycled for reuse
- Also chlorides

2

## The Problem

Ionic exchange water softeners add enough salt to already saline recycled water that it becomes unmarketable and/or causes non-compliance with regional board permits

3

## Other Background

- Hard water/saline wastewater areas also happen to be some of the highest population areas where water resources are limited and recycled water is valued
- 5 to 20% residential market penetration; primarily middle/upper income areas
- Industrial/commercial softeners can be regulated by local agencies

4

SB 1006 (Costa) -- Drinking water: water softening devices



Supporting Agencies

5

## Typical Self-Regenerative Softener

Valves/Controller

Resin Tank

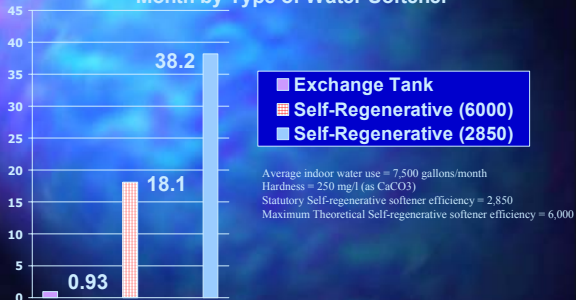
Brine/Regeneration Tank



Source: Culligan Mark 10 Softener clipped from [www.culligan.com](http://www.culligan.com)

6

Pounds of Salt Added to Local Wastewater Each Month by Type of Water Softener



7

## The IRWD Story

- Recycled water since 1967
- Softener regulation since 1966
- 90% of water used for landscaping
- 20% of all water used in IRWD
- Out of permit compliance

8

## 1997 Court Case

- 4th District Court of Appeals
- Water Quality Association vs City of Escondido
- Local regulations preempted by State statutes
- Court Recommendation: Amend existing State statutes

9

## SB 1006 (Costa)

- 1999
- Sponsored by ACWA and IRWD
- Extensive negotiation
- Supported by dozens of public agencies, CLCA, others
- Opposed by dozens of softener manufacturers, their employees, and customers; removed after negotiation

10

## SB 1006 (Costa)

- Demand control required 1/1/2000
- Currently Efficiency = 2,850
- 1/1/2000 Efficiency = 3,350
- 1/1/2002 Efficiency = 4,000
- Existing softeners are "grandfathered in"

11

## SB 1006 (cont'd)

- Agencies may regulate:
  - Effective 1/1/2003
  - If they are violating a waste discharge or recycling permit
  - If they are already regulating non-residential sources to the extent economically and technically feasible
  - If an "independent study" finds it to be the only available means

12

## Other Existing Code

- Certification required by C-55 water conditioning or C-36 plumbing contractor
- Water conservation devices installed
- Separate piping for outdoor water
- Permit required?

13

## Public Agency Concerns

- SB 1006 set the bar too high for actual implementation
- Pollution by ion exchange softeners should be prevented, not removed
- Paralysis by analysis

14

## Softener Industry Concerns

- Softener bans put "small businesses" out of business
- Public agencies arbitrarily single out residential softeners, without sufficient facts

15

## Potential Solutions

- Costs vary widely
- Who should pay the cost/inconvenience of keeping salinity out of recycled water?
- Likely requires review of multiple solutions
  - Regional softening/salinity removal
  - Salt source control (e.g., softeners)
  - Incentives
  - Salt removal (e.g., reverse osmosis)

16

## Recommendation

- Clearly, ionic exchange softeners add salt to the wastewater stream, thus impairing its reuse potential
- Include their use in the Task Force report as an impediment to recycled water use expansion
- Combine with the more general topic of source protection

17